

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference LUD-5684.3 PCT	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/US 01/29576	International filing date (day/month/year) 21/09/2001	(Earliest) Priority Date (day/month/year) 22/09/2000
Applicant LUDWIG INSTITUTE FOR CANCER RESEARCH		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 6 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☒ contained in the international application in written form.

☒ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☒ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☐ Unity of invention is lacking (see Box II).

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No

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A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12N15/12 C12N5/10 C12N5/20 C12Q1/68 C07K14/715
C07K16/18 G01N33/68 G01N33/53 A61K38/17

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12N C07K C12Q A61K G01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EMBL, EPO-Internal, WPI Data, PAJ, BIOSIS, MEDLINE, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>DATABASE EMBL 'Online! EMBL; 26 May 1999 (1999-05-26) PHILLIMORE B ET AL.: "Human DNA sequence from clone 503F13 on chromosome 6q24.1-25.2. Contains the IFNGR1 gene for interferon gamma receptor 1 (interferon-gamma receptor alpha chain), ESTs, STSs, GSSs and a putative CpG island." Database accession no. AL050337 XP002206184 Note: 98.0% nt seq identity with SEQ ID NO:10 in 1690 nt overlap (5768-7449:2367-678). the whole document</p> <p style="text-align: center;">--- -/-</p>	1,27



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
 "E" earlier document but published on or after the international filing date
 "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
 "O" document referring to an oral disclosure, use, exhibition or other means
 "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
 "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
 "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
 "&" document member of the same patent family

Date of the actual completion of the international search

18 July 2002

Date of mailing of the international search report

06/08/2002

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INTERNATIONAL SEARCH REPORT

International Application No

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DUMOUTIER L ET AL.: "Human interleukin-10-related T cell-derived inducible factor: Molecular cloning and functional characterization as an hepatocyte-stimulating factor" PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF USA, vol. 97, no. 18, 29 August 2000 (2000-08-29), pages 10144-10149, XP000946025 ISSN: 0027-8424 cited in the application the whole document	13, 15, 16, 19-25, 30, 31, 33-44
A	KOTENKO S V ET AL.: "Identification and functional characterization of a second chain of the interleukin-10 receptor complex" EMBO JOURNAL, vol. 16, no. 19, 1997, pages 5894-5903, XP002046438 ISSN: 0261-4189 cited in the application the whole document	13, 19-25, 33
A	WO 98 02542 A (UNIV NEW JERSEY MED) 22 January 1998 (1998-01-22) the whole document	13, 19-25, 33
A	WO 99 07848 A (ZYMOGENETICS INC) 18 February 1999 (1999-02-18) the whole document	13, 19-25, 33
A	WO 00 24758 A (RENAULD JEAN CHRISTOPHE ; LOUHED JAMILA (BE); DUMOUTIER LAURE (BE);) 4 May 2000 (2000-05-04) the whole document	13
A	WO 99 61617 A (HUMAN GENOME SCIENCES INC ; EBNER REINHARD (US); RUBEN STEVEN M (US) 2 December 1999 (1999-12-02) the whole document	13
A	WO 00 55204 A (HUMAN GENOME SCIENCES INC ; RUBEN STEVEN M (US); SHI YANGGU (US)) 21 September 2000 (2000-09-21) the whole document example 12	1-44

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	FERNANDEZ-BOTRAN R: "Soluble cytokine receptors: Basic immunology and clinical applications." CRITICAL REVIEWS IN CLINICAL LABORATORY SCIENCES, vol. 36, no. 3, June 1999 (1999-06), pages 165-224, XP008005929 ISSN: 1040-8363 the whole document	
A	HEANEY M L ET AL.: "Soluble cytokine receptors." BLOOD, vol. 87, no. 3, 1996, pages 847-857, XP008005931 ISSN: 0006-4971 the whole document	
A	MEAGER A ET AL.: "Assays for measuring soluble cellular adhesion molecules and soluble cytokine receptors" JOURNAL OF IMMUNOLOGICAL METHODS, vol. 191, no. 2, 1996, pages 97-112, XP004020837 ISSN: 0022-1759 paragraphs 1,4,5	
A	KOTENKO S V ET AL.: "Jak-Stat signal transduction pathway through the eyes of cytokine class II receptor complexes." ONCOGENE, vol. 19, no. 21 Review Issue 2, 4 May 2000 (2000-05-04), pages 2557-2565, XP008005927 ISSN: 0950-9232 cited in the application the whole document	
A	OPAL S M ET AL.: "Anti-inflammatory cytokines." CHEST, vol. 117, no. 4, April 2000 (2000-04), pages 1162-1172, XP008005928 ISSN: 0012-3692 the whole document	
P,X	WO 01 40467 A (ZYMOGENETICS INC) 7 June 2001 (2001-06-07) cited in the application the whole document	1-44

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International Application No

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X'	DUMOUTIER L ET AL.: "Cloning and characterization of IL-22 binding protein, a natural antagonist of IL-10-related T cell-derived inducible factor/IL-22." JOURNAL OF IMMUNOLOGY, vol. 166, no. 12, 15 June 2001 (2001-06-15), pages 7090-7095, XP002206182 ISSN: 0022-1767 the whole document ---	1-44
P,X	KOTENKO S V ET AL: "Identification, cloning, and characterization of a novel soluble receptor that binds IL-22 and neutralizes its activity" JOURNAL OF IMMUNOLOGY, vol. 166, no. 12, 15 June 2001 (2001-06-15), pages 7096-7103, XP002186668 ISSN: 0022-1767 the whole document ---	1-44
P,X	XU W ET AL.: "A soluble class II cytokine receptor, IL-22RA2, is a naturally occurring IL-22 antagonist" PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF USA, vol. 98, no. 17, 14 August 2001 (2001-08-14), pages 9511-9516, XP002206183 ISSN: 0027-8424 the whole document ---	1-44
E	WO 02 12345 A (ZYMOGENETICS INC) 14 February 2002 (2002-02-14) the whole document ---	13,15, 16, 19-25, 30,31, 33-35
T	EP 1 191 035 A (SCHERING AG) 27 March 2002 (2002-03-27) the whole document ---	1-44
T	GRUENBERG B H ET AL.: "A novel, soluble homologue of the human IL-10 receptor with preferential expression in placenta" GENES AND IMMUNITY, vol. 2, no. 6, October 2001 (2001-10), pages 329-334, XP001040302 ISSN: 1466-4879 the whole document ---	1-44

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INTERNATIONAL SEARCH REPORT

International Application No

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
T	<p>XIE M-H ET AL.: "Interleukin (IL)-22, a novel human cytokine that signals through the interferon receptor-related proteins CRF2-4 and IL-22R"</p> <p>JOURNAL OF BIOLOGICAL CHEMISTRY, vol. 275, no. 40, 6 October 2000 (2000-10-06), pages 31335-31339, XP002164307 ISSN: 0021-9258 cited in the application the whole document</p>	13
T	<p>KOTENKO S V ET AL.: "Identification of the functional interleukin-22 (IL-22) receptor complex. The IL-10R2 chain (IL-10Rbeta) is a common chain of both the IL-10 and IL-22 (IL-10-related T cell-derived inducible factor, IL-TIF) receptor complexes"</p> <p>JOURNAL OF BIOLOGICAL CHEMISTRY, vol. 276, no. 4, 26 January 2001 (2001-01-26), pages 2725-2732, XP002186669 ISSN: 0021-9258 the whole document</p>	13

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Information on patent family members

International Application No

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9802542	A	22-01-1998	US 5843697 A	01-12-1998
			AU 3668797 A	09-02-1998
			WO 9802542 A1	22-01-1998
WO 9907848	A	18-02-1999	US 5965704 A	12-10-1999
			AU 8673798 A	01-03-1999
			EP 1003863 A1	31-05-2000
			JP 2001512680 T	28-08-2001
			WO 9907848 A1	18-02-1999
WO 0024758	A	04-05-2000	US 6274710 B1	14-08-2001
			US 6359117 B1	19-03-2002
			AU 6520699 A	15-05-2000
			BR 9914777 A	03-07-2001
			CN 1332748 T	23-01-2002
			EP 1131333 A1	12-09-2001
			WO 0024758 A1	04-05-2000
			US 6331613 B1	18-12-2001
			US 2001024652 A1	27-09-2001
WO 9961617	A	02-12-1999	AU 4208799 A	13-12-1999
			CA 2329274 A1	02-12-1999
			EP 1082433 A1	14-03-2001
			JP 2002516103 T	04-06-2002
			US 6075319 A	13-06-2000
			WO 9961617 A1	02-12-1999
			US 2001023070 A1	20-09-2001
WO 0055204	A	21-09-2000	AU 3725300 A	04-10-2000
			AU 6496699 A	03-04-2000
			CN 1335884 T	13-02-2002
			EP 1114142 A1	11-07-2001
			WO 0055204 A1	21-09-2000
			WO 0015759 A1	23-03-2000
WO 0140467	A	07-06-2001	AU 2253301 A	12-06-2001
			WO 0140467 A1	07-06-2001
			US 2002012669 A1	31-01-2002
WO 0212345	A	14-02-2002	AU 9052401 A	18-02-2002
			WO 0212345 A2	14-02-2002
EP 1191035	A	27-03-2002	DE 10048626 A1	25-04-2002
			DE 10058907 A1	06-06-2002
			DE 10064906 A1	20-06-2002
			EP 1191035 A2	27-03-2002